

FILE 'HOME' ENTERED AT 23:24:05 ON 15 JUL 2010

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=> file .pensee
COST IN U.S. DOLLARS                               SINCE FILE      TOTAL
                                                    ENTRY SESSION
FULL ESTIMATED COST                           0.22    0.22
```

FILE 'CAPLUS' ENTERED AT 23:24:17 ON 15 JUL 2010  
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COPYRIGHT (C) 2010 Cambridge Scientific Abstracts (CSA)

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FILE 'USPATFULL' ENTERED AT 23:24:17 ON 15 JUL 2010  
CA INDEXING COPYRIGHT (C) 2010 AMERICAN CHEMICAL SOCIETY (ACS)

```
=> s yeast (p) surface (p) display express? (p) antibod? protein
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'YEAST (P) SURFACE'
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'SURFACE (P) DISPLAY'
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'EXPRESS? (P) ANTIBOD?'
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'YEAST (P) SURFACE'
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'SURFACE (P) DISPLAY'
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'EXPRESS? (P) ANTIBOD?'
1.0 0 YEAST (P) SURFACE (P) DISPLAY EXPRESS? (P) ANTIBOD? PROTEIN
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```
=> s yeast (p) surface (p) display expression  
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH  
FIELD CODE - 'AND' OPERATOR ASSUMED 'YEAST (P) SURFACE'  
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH  
FIELD CODE - 'AND' OPERATOR ASSUMED 'SURFACE (P) DISPLAY'  
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
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FIELD CODE - 'AND' OPERATOR ASSUMED 'YEAST (P) SURFACE'  
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH  
FIELD CODE - 'AND' OPERATOR ASSUMED 'SURFACE (P) DISPLAY'  
L2 15 YEAST (P) SURFACE (P) DISPLAY EXPRESSION

=> dup rem l2  
PROCESSING COMPLETED FOR L2  
L3 10 DUP REM L2 (5 DUPLICATES REMOVED)

=> d 13 1-10 ti

L3 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN DUPLICATE 1  
TI Improvement of a *Candida antarctica* lipase B-displaying yeast whole-cell  
biocatalyst and its application to the polyester synthesis reaction

L3 ANSWER 2 OF 10 USPATFULL on STN  
TI Methods for the identification and the isolation of epitope specific  
antibodies

L3 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN DUPLICATE 2  
TI Construction of a new plasmid for surface display on cells of *Yarrowia  
lipolytica*

L3 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN  
TI Cell-surface display expression system of *Saccharomyces cerevisiae* and its  
applications

L3 ANSWER 5 OF 10 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies

L3 ANSWER 6 OF 10 USPATFULL on STN  
TI Evolved clostridial toxins with altered protease specificity

L3 ANSWER 7 OF 10 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies

L3 ANSWER 8 OF 10 USPATFULL on STN  
TI DNA array sequence selection

L3 ANSWER 9 OF 10 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies

L3 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN  
TI Enhancement of cellobiose-usage using surface-engineered recombinant yeast  
in ethanol production

=> d 13 4 ibib abs

L3 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2009:1175600 CAPLUS <<LOGINID:::20100715>>  
DOCUMENT NUMBER: 152:30054  
TITLE: Cell-surface display expression system of  
*Saccharomyces cerevisiae* and its applications  
AUTHOR(S): Guo, Qin; Zhang, Wei; Ruan, Hui; He, Guoqing  
CORPORATE SOURCE: School of Biosystems Engineering and Food Science,  
Zhejiang University, Hangzhou, 310029, Peop. Rep.  
China  
SOURCE: Zhongguo Shengwu Gongcheng Zazhi (2008), 28(12),  
116-122  
CODEN: ZSGZAW; ISSN: 1671-8135

PUBLISHER: Zhongguo Shengwu Gongcheng Zazhishe  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: Chinese  
AB A review. The *Saccharomyces cerevisiae* cell-surface display expression system is one kind of eucaryotic display system which expresses heterogeneous protein on the cell surface by immobilization. The target protein is immobilized with GPI anchor and expressed on the cell surface after fusion gene that combines gene encoding protein and the specific carrier gene is introduced into yeast cells. It can be utilized in the fields of biocatalyst, cell-absorbent, live vaccine, environment management, protein library screening, high affinity antibody, biosensor, the antigen/antibody library construction, cancer diagnosis and so on. The mol. display using *Saccharomyces cerevisiae* and its basic principles, present research situation, various applications and development prospects were reviewed.

=> e iverson brent/au  
E1 1 IVERSON BOB/AU  
E2 8 IVERSON BONNIE/AU  
E3 50 --> IVERSON BRENT/AU  
E4 345 IVERSON BRENT L/AU  
E5 2 IVERSON BRENT LEE/AU  
E6 16 IVERSON BRIAN D/AU  
E7 13 IVERSON C/AU  
E8 8 IVERSON C A/AU  
E9 1 IVERSON C E/AU  
E10 1 IVERSON C H/AU  
E11 4 IVERSON C J/AU  
E12 1 IVERSON C K/AU

=> s e3  
L4 50 "IVERSON BRENT"/AU

=> s l4 and yeast  
L5 4 L4 AND YEAST

=> d 15 1-4 ti

L5 ANSWER 1 OF 4 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies

L5 ANSWER 2 OF 4 USPATFULL on STN  
TI Antibody fragments for protection from pathogen infection and methods of use thereof

L5 ANSWER 3 OF 4 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies

L5 ANSWER 4 OF 4 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies

=> e georgiou george/au  
E1 19 GEORGIOU G N/AU  
E2 2 GEORGIOU GABRIEL/AU  
E3 714 --> GEORGIOU GEORGE/AU  
E4 17 GEORGIOU GEORGE A/AU  
E5 1 GEORGIOU GEORGE ANTONY/AU  
E6 4 GEORGIOU GEORGE C/AU

E7 1 GEORGIOU GEORGE CLEOVoulos/AU  
E8 12 GEORGIOU GEORGE E/AU  
E9 3 GEORGIOU GEORGE J/AU  
E10 3 GEORGIOU GEORGE K/AU  
E11 35 GEORGIOU GEORGE M/AU  
E12 1 GEORGIOU GEORGE MICHAEL/AU

=> s e3 and yeast  
L6 39 "GEORGIOU GEORGE"/AU AND YEAST

=> dup rem 16  
PROCESSING COMPLETED FOR L6  
L7 35 DUP REM L6 (4 DUPLICATES REMOVED)

=> d 17 1-10 ti

L7 ANSWER 1 OF 35 USPATFULL on STN  
TI Compositions of Engineered Human Arginases and Methods for Treating Cancer

L7 ANSWER 2 OF 35 USPATFULL on STN  
TI Compositions And Methods For Engineered Human Arginine Deiminases

L7 ANSWER 3 OF 35 USPATFULL on STN  
TI Compositions And Methods For Analyzing Protein Interactions

L7 ANSWER 4 OF 35 USPATFULL on STN  
TI IMMUNOGLOBULIN FC LIBRARIES

L7 ANSWER 5 OF 35 USPATFULL on STN  
TI IMMUNOGLOBULIN LIBRARIES

L7 ANSWER 6 OF 35 BIOSIS COPYRIGHT (c) 2010 The Thomson Corporation on STN  
TI Engineering next generation proteases.

L7 ANSWER 7 OF 35 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies

L7 ANSWER 8 OF 35 USPATFULL on STN  
TI Prokaryotic host cells for expressing proteins rich in disulfide bonds

L7 ANSWER 9 OF 35 USPATFULL on STN  
TI ARTIFICIAL DISULFIDE ISOMERASES AND USES THEREOF

L7 ANSWER 10 OF 35 USPATFULL on STN  
TI COMBINATORIAL PROTEIN LIBRARY SCREENING BY PERIPLASMIC EXPRESSION

=> d 17 7 ibib abs

L7 ANSWER 7 OF 35 USPATFULL on STN  
ACCESSION NUMBER: 2007:296110 USPATFULL <<LOGINID::20100715>>  
TITLE: Directed evolution of enzymes and antibodies  
INVENTOR(S): Iverson, Brent, Austin, TX, UNITED STATES  
Georgiou, George, Austin, TX, UNITED STATES  
Chen, Gang, Austin, TX, UNITED STATES  
Olsen, Mark J., Austin, TX, UNITED STATES  
Daugherty, Patrick S., Austin, TX, UNITED STATES

NUMBER	KIND	DATE
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PATENT INFORMATION: US 20070258954 A1 20071108  
APPLICATION INFO.: US 2005-317680 A1 20051222 (11)  
RELATED APPLN. INFO.: Continuation of Ser. No. US 2001-813444, filed on 20 Mar 2001, PENDING Continuation of Ser. No. US 2001-782672, filed on 12 Feb 2001, ABANDONED Continuation-in-part of Ser. No. US 1995-447402, filed on 23 May 1995, GRANTED, Pat. No. US 5866344 Continuation-in-part of Ser. No. US 1994-258543, filed on 10 Jun 1994, ABANDONED Division of Ser. No. US 1991-794731, filed on 15 Nov 1991, GRANTED, Pat. No. US 5348867

DOCUMENT TYPE:

Utility

FILE SEGMENT:

APPLICATION

LEGAL REPRESENTATIVE:

FULBRIGHT & JAWORSKI L.L.P., 600 CONGRESS AVE., SUITE 2400, AUSTIN, TX, 78701, US

NUMBER OF CLAIMS:

45

EXEMPLARY CLAIM:

1

NUMBER OF DRAWINGS:

17 Drawing Page(s)

LINE COUNT:

3777

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to methods of selecting proteins, out of large libraries, having desirable characteristics. Exemplified are methods of expressing enzymes and antibodies on the surface of host cells and selecting for desired activities. These methods have the advantage of speed and ease of operation when compared with current methods. They also provide, without additional cloning, a source of significant quantities of the protein of interest.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d 17 8 ibib abs

L7 ANSWER 8 OF 35 USPATFULL on STN  
ACCESSION NUMBER: 2007:290638 USPATFULL <<LOGINID::20100715>>  
TITLE: Prokaryotic host cells for expressing proteins rich in disulfide bonds  
INVENTOR(S): Beckwith, Jonathan, Cambridge, MA, UNITED STATES  
Ritz, Daniel, Lucerne, SWITZERLAND  
Faulkner, Melinda, Brookline, MA, UNITED STATES  
Gon, Stephanie, Marseille, FRANCE  
Georgiou, George, Austin, TX, UNITED STATES  
PARENT ASSIGNEE(S): President and Fellows of Harvard College, Cambridge, MA, UNITED STATES (U.S. corporation)  
The Board of Regents, The University of Texas System, Austin, TX, UNITED STATES (U.S. corporation)

NUMBER            KIND            DATE

PATENT INFORMATION: US 20070254334 A1 20071101  
APPLICATION INFO.: US 2006-411988 A1 20060426 (11)  
DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: FOLEY HOAG, LLP, PATENT GROUP (w/HUV HMV), 155 SEAPORT BLVD., BOSTON, MA, 02210-2600, US  
NUMBER OF CLAIMS: 27  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 9 Drawing Page(s)  
LINE COUNT: 3247  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides composition and methods for producing proteins of

interest which comprise at least one disulfide bond, include proteins which in their mature form do not contain disulfide bonds, but whose precursor molecule contained at least one disulfide bond. The methods employ a host cell modified to more efficiently produce properly folded disulfide bond containing proteins. The host cells generally contain a mutation in one or more reductase genes, and can be further genetically modified to increase their growth rate, and are further optionally modified to increase the expression of a catalyst of disulfide bond formation. Host cells, methods for using such to produce proteins of interest, proteins of interest produced by these methods are within the scope of the invention.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d 17 11-20 ti

L7 ANSWER 11 OF 35 USPATFULL on STN  
TI ISOLATION OF BINDING PROTEINS WITH HIGH AFFINITY TO LIGANDS

L7 ANSWER 12 OF 35 USPATFULL on STN  
TI Antibody fragments for protection from pathogen infection and methods of use thereof

L7 ANSWER 13 OF 35 USPATFULL on STN  
TI Compositions and methods for production of disulfide bond containing proteins in host cells

L7 ANSWER 14 OF 35 USPATFULL on STN  
TI Combinatorial protein library screening by periplasmic expression

L7 ANSWER 15 OF 35 USPATFULL on STN  
TI Isolation of binding proteins with high affinity to ligands

L7 ANSWER 16 OF 35 USPATFULL on STN  
TI Antibodies with increased affinities for anthrax antigens

L7 ANSWER 17 OF 35 USPATFULL on STN  
TI Selection of bacterial inner-membrane anchor polypeptides

L7 ANSWER 18 OF 35 USPATFULL on STN  
TI ANTIBODIES WITH INCREASED AFFINITIES FOR ANTHRAX ANTIGENS

L7 ANSWER 19 OF 35 USPATFULL on STN  
TI Compositions and methods for production of disulfide bond containing proteins in host cells

L7 ANSWER 20 OF 35 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies

=> d 17 14 ibib abs

L7 ANSWER 14 OF 35 USPATFULL on STN  
ACCESSION NUMBER: 2006:34178 USPATFULL <<LOGINID::20100715>>  
TITLE: Combinatorial protein library screening by periplasmic expression  
INVENTOR(S): Georgiou, George, Austin, TX, UNITED STATES  
Jeong, Ki Jun, Austin, TX, UNITED STATES  
Iverson, Brent L., Austin, TX, UNITED STATES  
PATENT ASSIGNEE(S): Board of Regents, The University of Texas System (U.S.)

corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 20060029947	A1	20060209
APPLICATION INFO.:	US 2005-84055	A1	20050318 (11)
	NUMBER	DATE	
PRIORITY INFORMATION:	US 2004-554260P	20040318 (60)	
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	APPLICATION		
LEGAL REPRESENTATIVE:	FULBRIGHT & JAWORSKI L.L.P., 600 CONGRESS AVE., SUITE 2400, AUSTIN, TX, 78701, US		
NUMBER OF CLAIMS:	54		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	19 Drawing Page(s)		
LINE COUNT:	3466		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention overcomes the deficiencies of the prior art by providing a rapid approach for isolating binding proteins capable of binding small molecules and peptides. In the technique, libraries of candidate binding proteins, such as antibody sequences, may be expressed in the periplasm of gram negative bacteria with at least one target ligand. In clones expressing recombinant polypeptides with affinity for the ligand, the ligand becomes bound and retained by the cell even after removal of the outer membrane, allowing the cell to be isolated from cells not expressing a binding polypeptide with affinity for the target ligand. The target ligand may be detected in numerous ways, including use of direct fluorescence or secondary antibodies that are fluorescently labeled, allowing use of efficient screening techniques such as fluorescence activated cell sorting (FACS). The approach is more rapid and robust than prior art methods and avoids problems associated with the outer surface-expression of ligand fusion proteins employed with phage display.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d 17 21-35 ti

L7 ANSWER 21 OF 35 USPATFULL on STN  
TI Combinatorial protein library screening by periplasmic expression

L7 ANSWER 22 OF 35 USPATFULL on STN  
TI Secretion of proteins with multiple disulfide bonds in bacteria and uses thereof

L7 ANSWER 23 OF 35 USPATFULL on STN  
TI Engineering of leader peptides for the secretion of recombinant proteins in bacteria

L7 ANSWER 24 OF 35 USPATFULL on STN  
TI Immunoassay and antibody selection methods using cell surface expressed libraries

L7 ANSWER 25 OF 35 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies

L7 ANSWER 26 OF 35 BIOSIS COPYRIGHT (c) 2010 The Thomson Corporation on STN

TI An overoxidation journey with a return ticket.  
L7 ANSWER 27 OF 35 CAPLUS COPYRIGHT 2010 ACS on STN  
TI De novo design of protein secretion pathways for profit and for fun  
L7 ANSWER 28 OF 35 USPATFULL on STN  
TI Screening of cell populations  
L7 ANSWER 29 OF 35 USPATFULL on STN  
TI Methods for producing heterologous disulfide bond-containing polypeptides in bacterial cells  
L7 ANSWER 30 OF 35 USPATFULL on STN  
TI Methods for producing soluble, biologically-active disulfide-bond containing eukaryotic proteins in bacterial cells  
L7 ANSWER 31 OF 35 USPATFULL on STN  
TI Antibody selection methods using cell surface expressed libraries  
L7 ANSWER 32 OF 35 CAPLUS COPYRIGHT 2010 ACS on STN DUPLICATE 1  
TI Facilitating the formation of disulfide bonds in the Escherichia coli periplasm via coexpression of yeast protein disulfide isomerase  
L7 ANSWER 33 OF 35 CAPLUS COPYRIGHT 2010 ACS on STN DUPLICATE 2  
TI Expression of active human tissue-type plasminogen activator in Escherichia coli  
L7 ANSWER 34 OF 35 CAPLUS COPYRIGHT 2010 ACS on STN DUPLICATE 3  
TI Display of heterologous proteins on the surface of microorganisms: from the screening of combinatorial libraries to live recombinant vaccines  
L7 ANSWER 35 OF 35 USPATFULL on STN  
TI Constitutive soluble methane monooxygenase mutants of methanotrophic bacteria such as Methylosinus trichosporum A.T.C.C. 55314

=> e chen gang/au  
E1 1 CHEN GAN WEE/AU  
E2 2 CHEN GAN XIN/AU  
E3 6233 --> CHEN GANG/AU  
E4 1 CHEN GANG BEIJING UNIVERSITY OF AERONAUTICS AND ASTRO/AU  
E5 9 CHEN GANG CAI/AU  
E6 2 CHEN GANG CARBON RESEARCH LABORATORY CENTER FOR NANO/AU  
E7 1 CHEN GANG CHEN/AU  
E8 1 CHEN GANG CHEN ZHAOJUN/AU  
E9 21 CHEN GANG CHI/AU  
E10 1 CHEN GANG COLLEGE OF MATERIAL NORTHWEST TECHNOLOGY UN/AU  
E11 1 CHEN GANG COLLEGE OF MATHEMATICS AND COMPUTER NINGXIA/AU  
E12 1 CHEN GANG CROP AND SOIL SCIENCES WASHINGTON STATE UNI/AU

=> s e3 and yeast  
L8 63 "CHEN GANG"/AU AND YEAST

=> dup rem 18  
PROCESSING COMPLETED FOR L8  
L9 52 DUP REM L8 (11 DUPLICATES REMOVED)

=> d 19 1-10 ti

L9 ANSWER 1 OF 52 CAPLUS COPYRIGHT 2010 ACS on STN  
TI Milk powder feed for piglets

L9 ANSWER 2 OF 52 USPATFULL on STN  
TI IL-1BETA BINDING ANTIBODIES AND FRAGMENTS THEREOF

L9 ANSWER 3 OF 52 USPATFULL on STN  
TI IL-1BETA BINDING ANTIBODIES AND FRAGMENTS THEREOF

L9 ANSWER 4 OF 52 COMPENDEX COPYRIGHT 2010 EEI on STN  
TI An agglomerate algorithm for mining overlapping and hierarchical functional modules in protein interaction networks

L9 ANSWER 5 OF 52 CAPLUS COPYRIGHT 2010 ACS on STN DUPLICATE 1  
TI Reengineering natural design by rational design and *in vivo* library selection: The HLH subdomain in bHLHZ proteins is a unique requirement for DNA-binding function

L9 ANSWER 6 OF 52 USPATFULL on STN  
TI IL-1Beta Binding Antibodies and Binding Fragments thereof

L9 ANSWER 7 OF 52 USPATFULL on STN  
TI IL1-Beta Binding Antibodies and Fragments thereof

L9 ANSWER 8 OF 52 USPATFULL on STN  
TI Method of Treating or Preventing an IL-1 Related Disease or Condition

L9 ANSWER 9 OF 52 USPATFULL on STN  
TI Method of Treating or Preventing an IL-1 Related Disease or Condition

L9 ANSWER 10 OF 52 USPATFULL on STN  
TI Inducible Eukaryotic Expression System

=> d 19 10 ibib abs

L9 ANSWER 10 OF 52 USPATFULL on STN  
ACCESSION NUMBER: 2009:181014 USPATFULL <<LOGINID::20100715>>  
TITLE: Inducible Eukaryotic Expression System  
INVENTOR(S): Chen, Gang, Yorktown Heights, NY, UNITED STATES  
Dou, Changlin, Frederick, MD, UNITED STATES  
Fandi, James P., LaGrangeville, NY, UNITED STATES  
PATENT ASSIGNEE(S): Regeneron Pharmaceuticals, Inc., Tarrytown, NY, UNITED STATES (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 20090162901	A1	20090625
APPLICATION INFO.:	US 2008-323161	A1	20081125 (12)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 2006-332431, filed on 13 Jan 2006, Pat. No. US 7514545 Continuation of Ser. No. US 2003-447243, filed on 28 May 2003, Pat. No. US 7455988 Continuation-in-part of Ser. No. US 2003-447243, filed on 28 May 2003, Pat. No. US 7455988		

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-384004P	20020529 (60)
	US 2002-384004P	20020529 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	REGENERON PHARMACEUTICALS, INC, 777 OLD SAW MILL RIVER	

ROAD, TARRYTOWN, NY, 10591, US  
NUMBER OF CLAIMS: 15  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 14 Drawing Page(s)  
LINE COUNT: 1481

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Compositions and methods for the inducible expression of genes in eukaryotic cells are provided. Expression of a nucleotide sequence of interest encoding a protein of interest is controlled by a regulatory fusion protein that consists of a transcription blocking domain and a ligand-binding domain. When a cognate ligand for the ligand-binding domain is present, transcription of the nucleotide sequence of interest is blocked. Upon removal of the cognate ligand, the nucleotide sequence of interest is transcribed. The method is useful for large scale bioreactor production of a desired protein of interest in eukaryotic cells.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d his

(FILE 'HOME' ENTERED AT 23:24:05 ON 15 JUL 2010)

FILE 'CAPLUS, MEDLINE, BIOSIS, BIOTECHNO, COMPENDEX, ANABSTR, CERAB, METADEX, USPATFULL' ENTERED AT 23:24:17 ON 15 JUL 2010  
L1 0 S YEAST (P) SURFACE (P) DISPLAY EXPRESS? (P) ANTIBOD? PROTEIN  
L2 15 S YEAST (P) SURFACE (P) DISPLAY EXPRESSION  
L3 10 DUP REM L2 (5 DUPLICATES REMOVED)  
 E IVERSON BRENT/AU  
L4 50 S E3  
L5 4 S L4 AND YEAST  
 E GEORGIOU GEORGE/AU  
L6 39 S E3 AND YEAST  
L7 35 DUP REM L6 (4 DUPLICATES REMOVED)  
 E CHEN GANG/AU  
L8 63 S E3 AND YEAST  
L9 52 DUP REM L8 (11 DUPLICATES REMOVED)

=> s 19 and surface expression  
L10 7 L9 AND SURFACE EXPRESSION

=> d l10 1-7 ti

L10 ANSWER 1 OF 7 USPATFULL on STN  
TI Inducible Eukaryotic Expression System  
  
L10 ANSWER 2 OF 7 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies  
  
L10 ANSWER 3 OF 7 USPATFULL on STN  
TI ISOLATION OF BINDING PROTEINS WITH HIGH AFFINITY TO LIGANDS  
  
L10 ANSWER 4 OF 7 USPATFULL on STN  
TI Isolation of binding proteins with high affinity to ligands  
  
L10 ANSWER 5 OF 7 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies  
  
L10 ANSWER 6 OF 7 USPATFULL on STN  
TI Immunoassay and antibody selection methods using cell surface expressed

libraries

L10 ANSWER 7 OF 7 USPATFULL on STN  
TI Directed evolution of enzymes and antibodies

=> d l10 7 ibib abs

L10 ANSWER 7 OF 7 USPATFULL on STN  
ACCESSION NUMBER: 2003:51135 USPATFULL <<LOGINID::20100715>>  
TITLE: Directed evolution of enzymes and antibodies  
INVENTOR(S): Iverson, Brent, Austin, TX, UNITED STATES  
Georgiou, George, Austin, TX, UNITED STATES  
Chen, Gang, Austin, TX, UNITED STATES  
Olsen, Mark J., Austin, TX, UNITED STATES  
Daugherty, Patrick S., Austin, TX, UNITED STATES  
PATENT ASSIGNEE(S): Board of Regents, The University of Texas System (U.S.  
corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 20030036092	A1	20030220
APPLICATION INFO.:	US 2001-782672	A1	20010212 (9)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1997-847063, filed on 1 May 1997, ABANDONED Continuation-in-part of Ser. No. US 1995-447402, filed on 23 May 1995, GRANTED, Pat. No. US 5866344 Continuation-in-part of Ser. No. US 1994-258543, filed on 10 Jun 1994, ABANDONED Division of Ser. No. US 1991-794731, filed on 15 Nov 1991, GRANTED, Pat. No. US 5348867		

DOCUMENT TYPE:

Utility

FILE SEGMENT:

APPLICATION

LEGAL REPRESENTATIVE: Steven L. Highlander, Esq., FULBRIGHT & JAWORSKI  
L.L.P., Suite 2400, 600 Congress Avenue, Austin, TX,  
78701

NUMBER OF CLAIMS:

45

EXEMPLARY CLAIM:

1

NUMBER OF DRAWINGS:

13 Drawing Page(s)

LINE COUNT:

3955

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to methods of selecting proteins, out of large libraries, having desirable characteristics. Exemplified are methods of expressing enzymes and antibodies on the surface of host cells and selecting for desired activities. These methods have the advantage of speed and ease of operation when compared with current methods. They also provide, without additional cloning, a source of significant quantities of the protein of interest.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> e olsen mark/au

E1	1	OLSEN MARIT V/AU
E2	4	OLSEN MARITA/AU
E3	28 -->	OLSEN MARK/AU
E4	29	OLSEN MARK A/AU
E5	1	OLSEN MARK ALLAN/AU
E6	1	OLSEN MARK B/AU
E7	2	OLSEN MARK E/AU
E8	46	OLSEN MARK J/AU
E9	1	OLSEN MARK JON/AU

E10 4 OLSEN MARK L/AU  
E11 5 OLSEN MARK R/AU  
E12 1 OLSEN MARK ROGER/AU

=> s e3  
L11 28 "OLSEN MARK"/AU

=> dup rem l11  
PROCESSING COMPLETED FOR L11  
L12 19 DUP REM L11 (9 DUPLICATES REMOVED)

=> s l12 and yeast  
L13 2 L12 AND YEAST

=> d l13 1-2

L13 ANSWER 1 OF 2 COMPENDEX COPYRIGHT 2010 EEI on STN  
AN 2006-159814868 COMPENDEX <>LOGINID::20100715>>  
TI Engineering antibodies against the epidermal growth factor receptor to  
block dimerization  
AU Chao Ginger; Olsen Mark; Wolf-Yadlin Alejandro; Wittrup K.  
Dane  
SO 05AIChE: 2005 AIChE Annual Meeting and Fall Showcase, Conference  
Proceedings. AIChE Annual Meeting, Conference Proceedings (2005), pp.  
9137  
Published by: American Institute of Chemical Engineers  
Conference: 05AIChE: 2005 AIChE Annual Meeting and Fall Showcase  
Cincinnati, OH (US), 30 Oct 2005-4 Nov 2005  
CY United States  
DT Conference; (Conference Paper); Experimental  
LA English  
SL English  
ED Entered STN: 4 Jan 2009  
Last updated on STN: 4 Jan 2009

L13 ANSWER 2 OF 2 USPATFULL on STN  
AN 2009:152940 USPATFULL <>LOGINID::20100715>>  
TI Epidermal Growth Factor Receptor Polypeptides and Antibodies  
IN Chao, Ginger, Somerville, MA, UNITED STATES  
Olsen, Mark, Canyon, TX, UNITED STATES  
Wolf-Yadlin, Alejandro, Somerville, MA, UNITED STATES  
Wittrup, K. Dane, Chestnut Hill, MA, UNITED STATES  
Lauffenburger, Douglas A., Cambridge, MA, UNITED STATES  
PI US 20090137784 A1 20090528  
AI US 2009-353225 A1 20090113 (12)  
RLI Continuation of Ser. No. US 2006-356388, filed on 16 Feb 2006, Pat. No.  
US 7431561  
PRAI US 2005-653423P 20050216 (60)  
DT Utility  
FS APPLICATION  
LN.CNT 2226  
INCL INCLM: 530/387.900  
NCL NCLM: 530/387.900  
IC IPCI C07K0016-18 [I,A]  
IPCR C07K0016-18 [I,C]; C07K0016-18 [I,A]  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> e daugherty patrick/au  
E1 2 DAUGHERTY PATRICIA ANN/AU  
E2 2 DAUGHERTY PATRICIA J/AU

E3            7 --> DAUGHERTY PATRICK/AU  
 E4        147 DAUGHERTY PATRICK S/AU  
 E5            9 DAUGHERTY PATRICK SEAN/AU  
 E6            3 DAUGHERTY PAUL/AU  
 E7            1 DAUGHERTY PAUL J/AU  
 E8            3 DAUGHERTY PAUL R/AU  
 E9            2 DAUGHERTY PAUL W/AU  
 E10          3 DAUGHERTY PETER J/AU  
 E11          6 DAUGHERTY PHILLIP G/AU  
 E12          9 DAUGHERTY PHILLIP M/AU

=> s e3

L14        7 "DAUGHERTY PATRICK"/AU

=> dup rem l14  
PROCESSING COMPLETED FOR L14  
L15        6 DUP REM L14 (1 DUPLICATE REMOVED)

=> d l15 1-6

L15 ANSWER 1 OF 6 USPATFULL on STN  
AN 2009:340545 USPATFULL <<LOGINID::20100715>>  
TI ACTIVATABLE BINDING POLYPEPTIDES AND METHODS OF IDENTIFICATION AND USE  
THEREOF  
IN Daugherty, Patrick, Santa Barbara, CA, UNITED STATES  
Stagliano, Nancy, Santa Barbara, CA, UNITED STATES  
Thomas, Jerry, Goleta, CA, UNITED STATES  
Kamath, Kathryn, Santa Barbara, CA, UNITED STATES  
West, James W., Santa Barbara, CA, UNITED STATES  
Khare, Sanjay, Newbury Park, CA, UNITED STATES  
PI US 20090304719 Al 20091210  
AI US 2008-196269 Al 20080821 (12)  
PRAI US 2007-957449P 20070822 (60)  
US 2007-957453P 20070822 (60)  
US 2008-52986P 20080513 (61)  
DT Utility  
FS APPLICATION  
LN.CNT 6247  
INCL INCLM: 424/178.100  
INCLS: 530/300.000; 530/350.000; 506 9; 506/018.000; 506/014.000;  
536/023.100; 506/026.000; 514/012.000; 435/068.100; 435/071.000;  
530/387.300; 424/091.000; 435/217.000; 435/219.000  
NCL NCLM: 424/178.100  
NCLS: 424/009.100; 435/007.100; 435/068.100; 435/217.000; 435/219.000;  
506/009.000; 506/014.000; 506/018.000; 506/026.000; 514/012.000;  
530/300.000; 530/350.000; 530/387.300; 536/023.100  
IC IPCI A61K0039-395 [I,A]; C07K0002-00 [I,A]; C07K0014-00 [I,A];  
C40B0030-04 [I,A]; C40B0040-10 [I,A]; C40B0040-04 [I,C\*];  
C40B0040-02 [I,A]; C12N0015-11 [I,A]; C40B0050-06 [I,A];  
A61K0038-16 [I,A]; C12P0021-06 [I,A]; G01N0033-53 [I,A];  
C07K0016-00 [I,A]; A61K0049-00 [I,A]; C12N0009-68 [I,A];  
C12N0009-50 [I,A]  
IPCR A61K0039-395 [I,C]; A61K0039-395 [I,A]; A61K0038-16 [I,C];  
A61K0038-16 [I,A]; A61K0049-00 [I,C]; A61K0049-00 [I,A];  
C07K0002-00 [I,C]; C07K0002-00 [I,A]; C07K0014-00 [I,C];  
C07K0014-00 [I,A]; C07K0016-00 [I,C]; C07K0016-00 [I,A];  
C12N0009-50 [I,C]; C12N0009-50 [I,A]; C12N0009-68 [I,C];  
C12N0009-68 [I,A]; C12N0015-11 [I,C]; C12N0015-11 [I,A];  
C12P0021-06 [I,C]; C12P0021-06 [I,A]; C40B0030-04 [I,C];  
C40B0030-04 [I,A]; C40B0040-02 [I,C]; C40B0040-02 [I,A];  
C40B0040-04 [I,C]; C40B0040-10 [I,A]; C40B0050-06 [I,C];

C40B0050-06 [I,A]; G01N0033-53 [I,C]; G01N0033-53 [I,A]  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L15 ANSWER 2 OF 6 MEDLINE on STN  
AN 2008581796 MEDLINE <<LOGINID::20100715>>  
DN PubMed ID: 18770852  
TI Flow cytometric sorting of bacterial surface-displayed libraries.  
AU Kenrick Sophia; Rice Jeffrey; Daugherty Patrick  
CS University of California, Santa Barbara, California, USA.  
SO Current protocols in cytometry / editorial board, J. Paul Robinson,  
managing editor ... [et al.], (2007 Oct) Vol. Chapter 4, pp. Unit4.6.  
Journal code: 100899351. E-ISSN: 1934-9300. L-ISSN: 1934-9297.  
CY United States  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 200810  
ED Entered STN: 5 Sep 2008  
Last Updated on STN: 9 Oct 2008  
Entered Medline: 8 Oct 2008  
  
L15 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN  
AN 2005:451506 CAPLUS <<LOGINID::20100715>>  
DN 143:20878  
TI Polypeptide display libraries for bacterial cell surface by inserting  
foreign peptides into an extracellular loop of outer membrane protein,  
methods of making and using thereof  
IN Daugherty, Patrick; Bessette, Paul; Rice, Jeffrey  
PA The Regents of the University of California, USA  
SO PCT Int. Appl., 103 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005047461	A2	20050526	WO 2004-US26873	20040818
WO 2005047461	A3	20060511		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 20050196406	A1	20050908	US 2004-920244	20040818
US 7256038	B2	20070814		
EP 1668114	A2	20060614	EP 2004-816813	20040818
EP 1668114	B1	20091104		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
JP 2007513602	T	20070531	JP 2006-524024	20040818
AT 447611	T	20091115	AT 2004-816813	20040818
US 20070099247	A1	20070503	US 2006-612757	20061219
US 7612019	B2	20091103		
US 201001113303	A1	20100506	US 2009-563897	20090921
PRAI US 2003-495698P	P	20030818		

US 2004-920244 A3 20040818  
WO 2004-US26873 W 20040818  
US 2006-612757 A1 20061219

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)  
RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN DUPLICATE 1  
AN 2000:737275 CAPLUS <>LOGINID::20100715>>  
DN 134:52979  
TI Function-based isolation of novel enzymes from a large library  
AU Olsen, Mark J.; Stephens, Daren; Griffiths, Devin; Daugherty,  
Patrick; Georgiou, George; Iverson, Brent L.  
CS Department of Chemistry and Biochemistry, The University of Texas at  
Austin, Austin, TX, 78712, USA  
SO Nature Biotechnology (2000), 18(10), 1071-1074  
CODEN: NABIF9; ISSN: 1087-0156  
PB Nature America Inc.  
DT Journal  
LA English  
OSC.G 111 THERE ARE 111 CAPLUS RECORDS THAT CITE THIS RECORD (111 CITINGS)  
RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN  
AN 1996:217232 CAPLUS <>LOGINID::20100715>>  
TI Flow cytometric screening of antibody fragment contact residue libraries  
displayed at the surface of escherichia coli: A model system for the  
development of bacterial surface display for antibody selection.  
AU Daugherty, Patrick; Chen, Gang; Iverson, Brent; Georgiou, George  
CS Departments Chemical Engineering, University Texas, Austin, TX, 78712, USA  
SO Book of Abstracts, 211th ACS National Meeting, New Orleans, LA, March  
24-28 (1996), BIOT-076 Publisher: American Chemical Society, Washington,  
D. C.  
CODEN: 62PIAJ  
DT Conference; Meeting Abstract  
LA English

L15 ANSWER 6 OF 6 BIOSIS COPYRIGHT (c) 2010 The Thomson Corporation on STN  
AN 1996:253184 BIOSIS <>LOGINID::20100715>>  
DN PREV199698809313  
TI Flow cytometric screening of antibody fragment contact residue libraries  
displayed at the surface of Escherichia coli: A model system for the  
development of bacterial surface display for antibody selection.  
AU Daugherty, Patrick [Reprint author]; Chen, Gang; Iverson, Brent;  
Georgiou, George [Reprint author]  
CS Dep. Chem. Eng., Univ. Tex. at Austin, Austin, TX 87812, USA  
SO Abstracts of Papers American Chemical Society, (1996) Vol. 211, No. 1-2,  
pp. BIOT 76.  
Meeting Info.: 211th American Chemical Society National Meeting. New  
Orleans, Louisiana, USA. March 24-28, 1996.  
CODEN: ACSRAL. ISSN: 0065-7727.  
DT Conference; (Meeting)  
Conference; Abstract; (Meeting Abstract)  
LA English  
ED Entered STN: 31 May 1996  
Last Updated on STN: 31 May 1996

=> logoff y

(FILE 'HOME' ENTERED AT 23:24:05 ON 15 JUL 2010)

FILE 'CAPLUS, MEDLINE, BIOSIS, BIOTECHNO, COMPENDEX, ANABSTR, CERAB, METADEX, USPATFULL' ENTERED AT 23:24:17 ON 15 JUL 2010

L1           0 SEA FILE=MFE SPE=ON ABB=ON PLU=ON YEAST (P) SURFACE (P)  
DISPLAY EXPRESS? (P) ANTIBOD? PROTEIN

L2           15 SEA FILE=MFE SPE=ON ABB=ON PLU=ON YEAST (P) SURFACE (P)  
DISPLAY EXPRESSION

L3           10 DUP REM L2 (5 DUPLICATES REMOVED)  
D L3 1-10 TI  
D L3 4 IBIB ABS  
E IVERSON BRENT/AU

L4           50 SEA FILE=MFE SPE=ON ABB=ON PLU=ON "IVERSON BRENT"/AU

L5           4 SEA FILE=MFE SPE=ON ABB=ON PLU=ON L4 AND YEAST  
D L5 1-4 TI  
E GEORGIOU GEORGE/AU

L6           39 SEA FILE=MFE SPE=ON ABB=ON PLU=ON "GEORGIOU GEORGE"/AU AND  
YEAST

L7           35 DUP REM L6 (4 DUPLICATES REMOVED)  
D L7 1-10 TI  
D L7 7 IBIB ABS  
D L7 8 IBIB ABS  
D L7 11-20 TI  
D L7 14 IBIB ABS  
D L7 21-35 TI  
E CHEN GANG/AU

L8           63 SEA FILE=MFE SPE=ON ABB=ON PLU=ON "CHEN GANG"/AU AND YEAST

L9           52 DUP REM L8 (11 DUPLICATES REMOVED)  
D L9 1-10 TI  
D L9 10 IBIB ABS

L\*\*\* DEL   22 S E3 AND YEAST

L\*\*\* DEL   5 S E3 AND YEAST

L\*\*\* DEL   9 S E3 AND YEAST

L\*\*\* DEL   23 S E3 AND YEAST

L\*\*\* DEL   4 S E3 AND YEAST

L\*\*\* DEL   23 S E3 AND YEAST

L10          7 SEA FILE=MFE SPE=ON ABB=ON PLU=ON L9 AND SURFACE EXPRESSION  
  
            D L10 1-7 TI  
            D L10 7 IBIB ABS  
            E OLSEN MARK/AU

L11          28 SEA FILE=MFE SPE=ON ABB=ON PLU=ON "OLSEN MARK"/AU

L12          19 DUP REM L11 (9 DUPLICATES REMOVED)  
7 S E3  
3 S E3  
7 S E3  
5 S E3  
6 S E3  
5 S E3  
2 SEA FILE=MFE SPE=ON ABB=ON PLU=ON L12 AND YEAST  
D L13 1-2  
E DAUGHERTY PATRICK/AU

L14          7 SEA FILE=MFE SPE=ON ABB=ON PLU=ON "DAUGHERTY PATRICK"/AU

L15          6 DUP REM L14 (1 DUPLICATE REMOVED)

D L15 1-6

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	113.78	114.00
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-0.85	-0.85

STN INTERNATIONAL LOGOFF AT 23:40:21 ON 15 JUL 2010